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REPLY TO: 3430 Evaluation

July 2, 1980

SUBJECT: Biological Evaluation on La Porte and Greenville Ranger Districts

TO: Forest Supervisor, Plumas National Forest

At the request of Dick Castaldini, Plumas National Forest Silviculturist, John Kliejunas and Dave Schultz from the Forest Insect and Disease Management Staff and Chuck Richmond from the PSW Experiment Station visited the La Porte and Greenville Ranger Districts on June 16,17 and 18 to examine a number of situations. One of the primary concerns on both districts was whether the current salvage sale marking guidelines were adequate.

OBSERVATIONS

La Porte Ranger District. Areas in, or near, the Hartman and Willow Creek sales on Hartman Bar Ridge were used to evaluate the current salvage sale marking guidelines. The primary tree species of concern was white fir. In many cases the stands in question were at, or past, maturity. The objective of the salvage marking was to mark all dead trees as well as those expected to die within two years, and to leave all trees expected to live more than two years for upcoming green sales. Some concern had been expressed that with the recent return to more normal precipitation, marking guidelines appropriate for the years during and just after the drought are now including too much green timber in salvage sales.

The primary guideline being used to select the trees which will probably die within two years is to mark those which have half or more of the crown dead. The guideline is basically sound because white fir trees that have had the crown killed down to a stem diameter of 6 inches or more have probably been attacked by the fir engraver, Scolytus ventralis. The remainder of the bole will most likely become infested with the fir engraver and/or the fir roundheaded borer, Tetropium abietis, within two years. On borderline trees, other signs of a current decline in the health of the tree such as an extreme loss of the older needles in the crown, or yellow-green foliage combined with a heavy cone crop indicate trees which are stressed enough to predispose them to bark beetle or borer attack.

Fir trees that have the top killed to a diameter of 6 inches or less, with the remainder of the tree appearing relatively healthy, probably

won't die within the near future as long as precipitation remains adequate. The most common causes of leader mortality in true firs are small engraver beetles, usually Scolytus praeceps or Pityokteines elegans. These beetles are capable of attacking only the smooth, thin-barked portions of the tree and consequently their attacks can't proceed very far down the tree bole.

Numerous live white fir trees had clear resin on the bole within the crown. The resin was running from the initial attack points of the fir engraver made during the late summer of 1979. The clear resin indicates that most of the attacks were unsuccessful and the tree is still relatively vigorous; therefore few of these trees would be expected to die this year. At the elevations examined, the fir engraver won't emerge and attack this year until July through September, and most of the trees attacked this year won't fade until the spring of 1981.

Many of the old growth white fir trees exhibited outward signs of decadence and defect such as dead tops, multiple tops, broken tops, dwarf mistletoe bole cankers, butt scars and conks of the indian paint fungus (Echinodontium tinctorium). These signs indicate slow or even negative net growth, but they don't mean that the tree is likely to die within the near future, particularly during periods of adequate precipitation.

Greenville Ranger District. Several white fir stands in the general vicinity of Lights Creek were used to evaluate the current marking guidelines. The current guidelines appear to be generally adequate and the specific comments made about stands on the La Porte Ranger District would also apply to the Greenville Ranger District.

White fir underburning - Greenville Ranger District. Gerry Ingco requested an evaluation of a white fir stand near the Fleming Bug Sale which was underburned about two years ago to reduce slash. There was some cambium damage to the crop trees which caused concern over the possibility of annosus root disease, caused by Fomes annosus entering the stand. The dominant and co-dominant trees in the stand appear to be growing well after the burn and the limited insect attacks seen on these trees were apparently unsuccessful. Mortality of suppressed trees due to the fir engraver was slightly higher in the burned area than in nearby areas. It is still too early to easily tell if Fomes annosus or other decay fungi have infected any of the crop trees through the basal fire scars. If infection has occurred, decay will probably develop as a butt rot in another 3 to 10 years. The effects of this underburning on possible increased insect or disease activity should be followed closely before it is adopted as a common practice.

Jeffrey pine mortality - Greenville Ranger District. Approximately 10 to 12 scattered old growth Jeffrey pine were just fading along the upper part of Hungry Creek on the Greenville Ranger District. The trees had been attacked by the Jeffrey pine beetle, Dendroctonus jeffreyi, during 1979. Some of the beetles have already emerged and the remainder should emerge soon, but little additional mortality is expected because moisture conditions during the winter and spring were excellent.

Keddie Ridge Burn - Greenville Ranger District. On June 18, the sales in the burn on Keddie Ridge were examined for bark beetle activity. Trees in the burn were marked using Willis Wagener's "Guidelines for Estimating the Survival of Fire-Damaged Trees in California", however the guidelines were extended in the case of white fir to leave as many trees as possible. There is justifiable reason for concern over the survival of the trees because historically, Wagner's guidelines have been excellent for estimating survival. Scorched trees that die usually have bark beetles in them, but bark beetles have rarely built up in fire damaged timber and spread to adjacent healthy stands in California.

Attacks by the major bark beetles of pines such as the western pine beetle, mountain pine beetle and turpentine beetle are relatively easy to detect because a conspicuous pitch tube is produced. A number of ponderosa pine trees with basal pitch tubes from the turpentine beetle, Dendroctonus valens, and one sugar pine with mountain pine beetle, Dendroctonus ponderosae, pitch tubes were observed. Attacks by pine engravers, Ips spp., the fir engraver or roundheaded and flatheaded borers are much more difficult to detect without chopping into the tree. We did not chop into any of the leave trees, but a check of some of the standing timber designated for harvest showed only a few flatheaded borer larvae. In general, it appeared that most of the leave trees will survive for the immediate future, but it should be recognized that the fire damage will reduce the life expectancy of the scorched trees from what it would have been without the fire. After the leave trees have served their purpose (as seed trees or a shelterwood), the District should consider removing them within 10 years of the establishment of a new stand. In addition to providing tree seed, they will also serve as a source of dwarf mistletoe seed. Some of the leave trees are now at, or approaching, maturity and their age and condition suggests that they will not survive until the rotation age of the replacement stand, and may cause problems before that time.

If clarification of any of the points raised in this evaluation is necessary, please contact Dave Schultz, John Kliejunas or me at (415) 556-6520.

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